SECTION 1. MATERIAL IDENTIFICATION

MATERIAL NAME: SODIUM HYDROXIDE
OTHER DESIGNATIONS: Caustic Soda, Soda Lye, NaOH, CAS #1310-73-2
MANUFACTURER: Available from many suppliers including:
   Dow Chemical USA, Inorganic Chemicals Dept.
   2020 Dow Center
   Midland, MI 48640
   (517) 630-1000
   Diamond Shamrock Co., Chlor-Alkali Div.
   351 Phelps Court, Box 152300
   Irving, TX 75015-2300
   (800) 241-3134

SECTION 2. INGREDIENTS AND HAZARDS

Typical content:
Sodium Hydroxide (NaOH)

INPURITIES:
Sodium Carbonate (Na₂CO₃) 0.5-2.5
Sodium Chloride (NaCl) 0.01-2.1
Sodium Sulfate (Na₂SO₄) 0.02-0.1
Potassium, Calcium, Magnesium
Silicon Dioxide (SiO₂)
Other metals (Total) 0.03

* Current (1985-86) ACGIH TLV. The current OSHA PEL is 2.0 mg/m³ averaged
  over 8 hours.

HAZARD DATA
Ceiling limit: 2 mg/m³
Skin, Rabbit:
50 mg/24H - Severe
irritation
Eye, Rabbit:
0.05 mg/24H - Severe
irritation

SECTION 3. PHYSICAL DATA

Boiling Point, 1 atm .............. 1388°C
Melting point .............. 318°C
Specific gravity (20/4°C) ........ 2.13
Vapor pressure, mmHg @ 759°C ...... 1

Water solubility, g/100cc:
@ 0°C .............. 42
@ 100°C .............. 347

Molecular weight .............. 40

APPEARANCE & ODOR: White or off-white hygroscopic solid. No odor.

DESCRIPTION: Anhydrous alkaline solid (flake, pellet, etc.)

SECTION 4. FIRE AND EXPLOSION DATA

Flash Point and Method Autoignition Temp. Flammability Limits in Air
None - non combustible N/A N/A N/A

Although this material is not combustible, it can be hazardous if present in a fire area. It can melt and
flow when heated (m.p. 318°C). The hot or molten material can react violently with water (splattering) and
can cause ignition of combustible materials. It can also react with certain metals, such as aluminum, to
generate flammable hydrogen gas. (Also see Section 5).

Firefighters should wear self-contained breathing apparatus and full protective gear when fighting fires
involving this material.

SECTION 5. REACTIVITY DATA

This material is stable under normal conditions of storage and handling. It does not undergo hazardous
polymerization nor does it evolve any hazardous decomposition products. It slowly absorbs moisture from the
air and reacts with carbon dioxide from the air to form sodium carbonate.

Sodium hydroxide reacts violently with water, strong acids and with many organic chemicals, especially with
nitrocarbons and chlorocarbons. It will react with trichloroethylene to form spontaneously flammable
dichloroacetylene. Considerable heat is generated when it dissolves in water.

Avoid contact with leather and wool. Contact with aluminum, tin, zinc, and alloys that contain these metals
causes the formation of hydrogen gas (flammable).

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SECTION 6. HEALTH HAZARD INFORMATION

Sodium Hydroxide is a strong alkali and is dangerous when improperly handled. It can be destructive to all human tissue it contacts, producing severe burns. Eye contact causes severe, permanent injury. Skin contact causes irritation and, if not removed immediately, severe burns with scarring. The effects of inhalation of the dust or mist vary from mild irritation to destructive burns. Pneumonitis may occur. Ingestion causes severe burns of the mouth, throat and stomach and may be fatal.

FIRST AID: EYE CONTACT: Wash eyes immediately with plenty of running water for no less than 15 minutes, including under the eyelids and all surfaces. Speed in rinsing out the eyes with water after contact is extremely important if permanent injury is to be avoided. Get medical attention promptly. SKIN CONTACT: Wash contaminated area promptly with large quantities of water. Remove contaminated clothing while washing. Prolong washing in serious cases until medical help arrives - even for an hour or longer. Physician should see all cases other than minor exposures to small areas of the skin. INHALATION: Remove from exposure to mist or dust and get prompt medical help. INGESTION: Immediately give person large quantities of water or milk to drink (never give anything by mouth to an unconscious person). DO NOT induce vomiting. Obtain medical assistance immediately.

SECTION 7. SPILL, LEAK AND DISPOSAL PROCEDURES

Clean-up personnel should wear protective equipment to prevent skin and eye contact. Promptly shovel up spilled solid sodium hydroxide into suitable containers for reclaim. Avoid dust generation! Clean-up spills promptly as moisture absorption from air may make clean-up difficult. Flush contaminated surfaces with water and neutralize with dilute acid, preferably acetic acid, to remove final traces. Finally, rinse with water.

DISPOSAL: Waste caustic should never be discharged directly into drains, sewers or surface waters. Dilute well with water and carefully neutralize with acid. Follow all applicable Federal, State and local regulations.

REPORTABLE SPILL QUANTITY: 1000 lbs (40CFR117).

SECTION 8. SPECIAL PROTECTION INFORMATION

Provide adequate general and/or local exhaust ventilation to meet TLV requirements, especially where dusting or misting conditions can exist. Use a NIOSH approved respirator for dust/mist where needed.
Use chemical safety goggles, a plastic face shield in addition to safety goggles is also desirable where misting/splashing may occur. Use rubber gloves, rubber apron or protective suit, and rubber boots where needed to prevent contact with sodium hydroxide, especially when preparing solutions.
Eye wash stations and safety showers must be immediately available.

This is a special hazard to contact lenses wearers; soft lenses may absorb and all lenses concentrate irritants.
Contact between caustic and contact lenses will severely hamper contact lens removal due to the slippery nature of this caustic.

SECTION 9. SPECIAL PRECAUTIONS AND COMMENTS

Store in well-sealed containers in a dry location. Protect containers from physical damage. Avoid handling conditions that may lead to spills or leaks or the formation of mist or dust. Wherever this material is stored, unloaded, handled or used, abundant water (preferably running water) should be available for emergency use.
Drains servicing areas where this material is stored or used should have retention basins for pH adjustment and dilution of spills and flushings before discharge. Workers handling this material should be trained in proper handling and emergency procedures.
DOT HAZARD CLASSIFICATION: Corrosive Material
DOT LABEL: CORROSIVE
DOT ID NUMBER: UN1823
DATA SOURCE(S) CODE (See Glossary) 2, 4, 9, 11, 12, 27, 55, 58, MSDS 3 (rev. A), V.